

Governor's STEM Academy Brief



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The purpose of this monthly brief is to provide information, resources, and a networking vehicle to support the STEM (science, technology, engineering, and mathematics) Academies in Virginia.

GOVERNOR'S STEM ACADEMIES SPOTLIGHT

The Governor's STEM Academy at the Burton Center for Arts and Technology recently participated in Canstruction®, a unique international charity which hosts competitions, exhibitions and events showing colossal structures made entirely out of full cans of food. After the structures are built, the creations go on display to the public as a giant art exhibition. At the end of the event, all food is donated to local hunger relief organizations. The Canstruction® project, sponsored by The American Institute of Architects, Can Manufacturers Institute, and the Society for Design Administration, was envisioned as a regional design competition by the Center for Visual Arts and Museum Studies (CVA) faculty and students of the Burton Center for Arts and Technology and as an opportunity to raise awareness and contributions toward "Feeding America Southwest Virginia". This project-based design contest required students from CVA and the Center for Engineering to work together to provide input, support, and teamwork during both the design and construction phases as the "larger-than-life" sculpture was created within a twelve-hour construction window at the Taubman Museum of Art in Roanoke. At the opening event on October 4, the Burton Team entry received the award for "Best Use of Labels" on the 4,200-can structure. The Burton team was the only student group represented in the field of engineering firms and businesses from throughout the Roanoke Valley. Congratulations to the students and faculty of Burton's Center for Engineering and the Center for Visual Arts and Museum Studies for a job well done!

CAREER LINKS—MANUFACTURING

- For perspectives on the outlook of the manufacturing sector, see *Scientific American's* [Future of Manufacturing](#) and *Industry Week's* [Four Trends Driving the Resurgence in American-Based Manufacturing](#).
- Visit [Manufacturing Automation](#) to keep up with industry trends in machine safety, motion control, programmable control, robotics, wireless, lean manufacturing, and other areas.
- [SteelWorks](#) offers a look at [The New Steel](#), [Making Steel](#), and [Sustainability](#).
- The [Precision Metal Forming Association Educational Foundation](#) site includes links for [students](#), [parents](#), and [educators](#), as well as other resources.
- For [Fast Facts on Plastic](#), [About Plastics](#), and other information on the industry, explore [Society of the Plastics Industry](#).
- [Manufacturing at the Nanoscale](#) is one of many useful resources from the [National Nanotechnology Initiative](#).
- For background on women in manufacturing, see [Untapped resource: How manufacturers can attract, retain, and advance talented women](#) from Deloitte and the Manufacturing Institute.
- Career links for the Manufacturing Career Cluster include the [Precision Machined Products Association](#), [SteelWorks](#), [NationJob](#), [My Career Gateway: Advanced Manufacturing](#), [My Career Gateway: Nanotechnology](#), [Careers in Manufacturing](#), [CareerME](#), McGraw-Hill Education's [College & Career Readiness](#), [Virginia Department of Education: CTE](#), Glencoe's [Career Clusters Series](#), [Careers in Welding](#),

[Materials Science](#), and [Virginia Career VIEW](#) (search by career cluster).

GRANTS AND OPPORTUNITIES

- The [American Institute of Architects](#) offers a listing of scholarships and opportunities for students attending various schools of architecture.
- The [ASM Materials Education Foundation](#) supports educators involved in materials, science and engineering through ASM Materials Camp® Teachers Camps, ten \$500 annual classroom grants and K-12 educator awards. Have more fun with your students and use innovative tools for more successful learning
- A Governor's STEM Academy at George C. Marshall High School, Fairfax County, was awarded second place and a \$12,000 prize in the High School Division Finals of the 2013 Maryland Cyber Challenge and Conference (MDC3). The National Security Agency (NSA) sponsored the 2013 MDC3 finals that took place at the CyberMaryland 2013 conference in Baltimore October 8-9. First place team members in both the high school and college divisions will receive \$5,000 each and runners-up receive \$2,000 each to be used toward their higher education and training in the cyber security and computer science fields.
- Does your school or class have what it takes to go viral? [STEM Fuse, A Revolution in Stem Education](#), wants to put you up to the challenge for the chance to win GREAT prizes for your school by creating an original viral video between now and December 16, 2013. The rules are easy—and the prizes are big!

INSTRUCTIONAL STRATEGIES

- For lesson plans related to manufacturing, see the following: [Gas Metal Arc Welding Shielding Gas Mix](#), [Principles of Manufacturing](#), [Welding](#), [Advanced Welding](#), [Nano Waterproofing](#), [Waterproof that roof](#), [Robotics & Automation](#), and [Critical Thinking and Problem Solving in Advanced Manufacturing](#).
- Use [Get Startup Savvy: Lessons From the New Manufacturing Revolution](#) and other resources from [Popular Mechanics](#) to introduce your students to entrepreneurial possibilities in manufacturing.
- Explore the [Manufacturing Portal](#) of the [National Institute of Standards and Technology](#) to learn about National Engineering Laboratory projects that focus on [Green Manufacturing](#), [Lean Manufacturing](#), [Nanomanufacturing](#), [Robotics](#), [Simulation](#), [Sustainable Manufacturing](#), and other segments of the industry.
- Past graduates of ASM Materials Camp® Teachers Camps have recommended sites for [lesson plans](#).

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